Claims

1. A method for the preparation of a supported polymerisation catalyst system said method comprising the combination of

(i) a porous support

(ii) a polymerisable monomer,

(iii) a polymerisation catalyst, and

(iv) a cocatalyst,

characterised in that the polymerisable monomer is added to the porous support before addition of one or both of the polymerisation catalyst and the cocatalyst.

2. A method according to claim 1 comprising the steps of

(i) addition of the cocatalyst to a porous support

(ii) addition of the polymerisable monomer, and

(iii) addition of the polymerisation catalyst.

3. A method according to either of the preceding claims wherein the polymerisable monomer is 1-hexene.

4. A method according to any of the preceding claims wherein the polymerisable monomer is added to the porous support at 0.01 – 2 times the pore volume of the support.

5. A method according to any of the preceding claims wherein the polymerisable monomer is added to the support at less than or equal to the pore volume of support

6. A method according to any of the preceding claims wherein the porous support is silica.

7. A method according to claim 6 wherein the silica is pretreated with an organometallic compound.

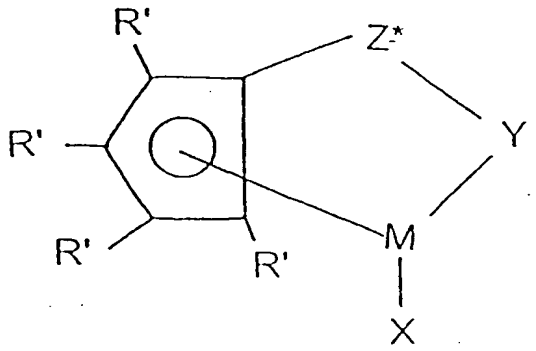
8. A method according to any of the preceeding claims wherein the polymerisation catalyst is a metallocene.

9. A method according to claim 8 wherein the metallocene has the formula:

$CpMX_n$

wherein Cp is a single cyclopentadienyl or substituted cyclopentadienyl group optionally covalently bonded to M through a substituent, M is a Group VIA metal bound in a η^5 bonding mode to the cyclopentadienyl or substituted cyclopentadienyl group, X each occurence is hydride or a moiety selected from the group consisting of halo, alkyl, aryl, aryloxy, alkoxy, alkoxyalkyl, amidoalkyl, siloxyalkyl etc. having up to 20 non-hydrogen atoms and neutral Lewis base ligands having up to 20 non-hydrogen atoms or optionally one X together with Cp forms a metallocycle with M and n is dependent upon the valency of the metal.

10. A method according to claim 8 wherein the metallocene is represented by the general formula:



wherein:-

R' each occurrence is independently selected from hydrogen, hydrocarbyl, silyl, germyl, halo, cyano, and combinations thereof, said R' having up to 20 nonhydrogen atoms, and optionally, two R' groups (where R' is not hydrogen, halo or cyano) together form a divalent derivative thereof connected to adjacent positions of the cyclopentadienyl ring to form a fused ring structure;

X is a neutral η^4 bonded diene group having up to 30 non-hydrogen atoms, which forms a π-complex with M;

Y is -O-, -S-, -NR*-, -PR*-,

M is titanium or zirconium in the + 2 formal oxidation state;

Z* is SiR^*_2, CR^*_2, $SiR^*_2SIR^*_2$, $CR^*_2CR^*_2$, $CR^*=CR^*$, $CR^*_2SIR^*_2$, or GeR^*_2, wherein:

R* each occurrence is independently hydrogen, or a member selected from hydrocarbyl, silyl, halogenated alkyl, halogenated aryl, and combinations thereof, said R* having up to 10 non-hydrogen atoms, and optionally, two R* groups from Z* (when R* is not hydrogen), or an R* group from Z* and an R* group from Y form a ring system.

11. A method according to any of the preceding claims wherein the cocatalyst is an aluminoxane.

12. A method according to any of the preceding claims wherein the cocatalyst has the general formula:

$$(L^*\text{-}H)^+_d\ (A^{d-})$$

wherein

L* is a neutral Lewis base

$(L^*\text{-}H)^+_d$ is a Bronsted acid

A^{d-} is a non-coordinating compatible anion having a charge of d^-, and

d is an integer from 1 to 3.

13. A method according to claim 12 wherein the cocatalyst comprises a cation and an anion wherein the anion has at least one substituent comprising a moiety having an active hydrogen.

14. A process for the polymerisation of olefin monomers selected from (a) ethylene, (b) propylene (c) mixtures of ethylene and propylene and (d) mixtures of (a), (b) or (c) with one or more other alpha-olefins, said process performed in the presence of a supported polymerisation catalyst system prepared according to the method of any of the preceding claims.

15. A process for the polymerisation of ethylene or the copolymerisation of ethylene and α-olefins having from 3 to 10 carbon atoms, said process performed under polymerisation conditions in the present of a supported polymerisation catalyst system

prepared according to the method of any of claims 1-13.

16. A process according to claim 15 wherein the α-olefin is 1-butene, 1-hexene, 4-methyl-1-pentene or 1-octene.

17. A process according to any of claims 14 to 16 performed in the solution, slurry or gas phase.

18. A process according to any of claims 14 to 17 performed in a fluidised bed gas phase reactor.